

Claims

1. A process for the production of a coated substrate comprising depositing a reflective metal layer on to a substrate by a low pressure deposition process performed in a coating atmosphere, characterised in that the coating atmosphere contains a gaseous oxygen scavenger, wherein when the reflective metal layer is deposited as a layer in a multilayer coating which also contains a bismuth oxide layer, said gaseous oxygen scavenger is not hydrogen.

2. A process as claimed in claim 1 wherein the process is characterised in that the coating atmosphere contains a gaseous oxygen scavenger other than hydrogen.

3. A process as claimed in claim 1 or claim 2 wherein each molecule of the gaseous oxygen scavenger is capable of combining with more than one atom of oxygen.

4. A process as claimed in any one of the preceding claims wherein the gaseous oxygen scavenger is a hydrocarbon.

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5. A process as claimed in claim 4 wherein the gaseous oxygen scavenger is a C₁ to C₄ hydrocarbon.
6. A process as claimed in claim 5 wherein the gaseous oxygen scavenger is methane.

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7. A process as claimed in any one of the preceding claims wherein the coating atmosphere contains the gaseous oxygen scavenger in an amount that is sufficient to alleviate oxidation and/or degradation of the reflective metal layer.
8. A process as claimed in one of the preceding claims wherein the coating atmosphere contains a measurable amount of oxygen and contains the gaseous oxygen scavenger in an amount that exceeds 15 mol% of the amount of oxygen.

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9. A process as claimed in claim 8 wherein the coating atmosphere contains the gaseous oxygen scavenger in an amount that exceeds 30 mol% of the amount of oxygen.

10. A process as claimed in claim 9 wherein the coating atmosphere contains the gaseous oxygen scavenger in an amount that exceeds 50 mol% of the amount of oxygen.

11. A process as claimed in any one of the preceding claims wherein the reflective metal layer is a silver layer.

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12. A process as claimed in any one of the preceding claims wherein the reflective metal layer has a thickness in the range 5 to 30 nm.

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13. A process as claimed in claim 12 wherein the reflective metal layer has a thickness in the range 7 to 18 nm.

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14. A process as claimed in any one of the preceding claims wherein the sheet resistance of the reflective metal layer is below 12 Ω/square .

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15. A process as claimed in any one of the preceding claims wherein the coating atmosphere contains a measurable amount of oxygen and the sheet resistance of the reflective metal layer deposited in the coating atmosphere is below 12 Ω/square .

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16. A process as claimed in claim 15 wherein the sheet resistance of the reflective metal layer deposited in the coating atmosphere is below 8 Ω/square .

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17. A process as claimed in the preceding claims wherein the low pressure deposition process for depositing the reflective metal layer is sputtering.

18. A process for production of a coated substrate as claimed in any one of the preceding claims that additionally comprises depositing a metal oxide anti-reflection layer by a low pressure deposition process before depositing the reflective metal layer.

19. A low pressure process for the deposition of a reflective metal layer on a substrate, performed in a deposition chamber containing a coating atmosphere, comprising evacuating the deposition chamber to a low first pressure, introducing a coating gas into the deposition chamber thereby raising the pressure therein to a higher second pressure of about 10^{-3} mbar, and sputtering the reflective metal layer at the second pressure, characterised in that the first pressure is about 10^{-4} mbar and in that the coating atmosphere contains a gaseous oxygen scavenger.

20. A process as claimed in any one of the preceding claims wherein the substrate is curved.

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21. Coated glass produced by a process as claimed in any one of the preceding claims.

22. Coated glass comprising a glass substrate and a multilayer coating deposited on a surface of the glass substrate, wherein said multilayer coating comprises, in sequence, a first metal oxide anti-reflection layer, a reflective metal layer and a second metal oxide anti-reflection layer, characterised in that the reflective metal layer is deposited by a low pressure deposition process performed in a coating atmosphere containing a gaseous oxygen scavenger other than hydrogen.

23. Use of a gaseous oxygen scavenger to reduce oxidation or oxygen induced degradation of a reflective metal layer in a process for the production of a coated substrate, said process comprising depositing the reflective metal layer on to a substrate by a low pressure deposition process performed in a coating atmosphere containing the oxygen scavenger.

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